



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,505	06/09/2005	Keiichi Murakami	2005-0872A	7088
513 7590 07/07/2009 WENDEROTH, LIND & PONACK, L.L.P. 1030 15th Street, N.W., Suite 400 East Washington, DC 20005-1503				
EXAMINER				
PHAN, THIEM D				
ART UNIT		PAPER NUMBER		
3729				
MAIL DATE		DELIVERY MODE		
07/07/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,505

Applicant(s)

MURAKAMI, KEIICHI

Examiner

THIEM PHAN

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The amendment filed on 04/30/09 has been fully considered and made of record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Keiichi Murakami (JP 2000-332387), hereinafter '387.

Regarding claims 1 and 7, the '387 teaches a method of producing multilayer printed circuit board which includes forming a thermosetting resin layer (Fig. 5, 16) so as to fill spaces between circuit patterns (Fig. 5, 15) formed on a surface of the printed wiring board (Fig. 3, 10), heating and curing the resin layer (Col. 23, lines 52 & 53), and then polishing the cured resin layer covering the circuit patterns, thereby exposing the circuit patterns (Col. 24, lines 1-4), wherein the step of heating and curing the resin layer comprises:

- maintaining the resin layer (Fig. 6, 16; Paragr. 17) at a non-curable temperature where the resin layer is pressed via a smoothing plate (19) in a reduced pressure environment such as low pressure chamber or enclosure;
- heating the resin layer (Paragr. 18) in the pressed state to a curing temperature at which the resin layer is cured;

- introducing outside air into the reduced pressure environment in order to gradually remove the vacuum pressure environment while maintaining the pressed state and the curing temperature, reducing the pressure applied to the smoothing plate while maintaining the curing temperature and cooling the resin layer to remove the smoothing plate (19) for next phase of polishing (Figs. 7 & 8; Paragr. 19);
- wherein a metallic foil with a roughened surface (Fig. 6, 17) facing the resin layer is superposed on the resin layer.

Regarding claim 2, the '387 teaches a gradually applied pressure to the smoothing plate (Fig. 6, 17) or an increase in predetermined stages of pressure changes against the circuit board (11).

Regarding claims 3 and 8, the '387 teaches that the resin layer is formed by adhering a liquid resin (Fig. 6, 16) to the printed wiring board so as to fill spaces between the circuit patterns (15).

Regarding claims 4 and 10, the '387 teaches that the resin layer is formed by superposing a semi-cured resin sheet (Fig. 5, 16; Paragr. 16) on the printed wiring board.

Regarding claims 5, 6, 9 and 11, the '387 teaches that the metallic foil (Fig. 6, 17) is formed with a different type of metal than the circuit patterns (15).

Response to Arguments

4. Applicant's arguments filed on 04/30/09 have been fully considered but they are not persuasive for the following reasons:

Applicant's assertions that the prior art Keiichi Murakami or '387 does not teach or suggest the process of introducing outside air into the reduced pressure environment or the process of reducing the pressure applied to the smoothing plate while maintaining the curing temperature (Remarks, pages 5 & 6) are traversed because Keiichi Murakami teaches the process of vacuum pressing the flat and smooth surface with a smoothing plate (Fig. 6, 19) against the resin layer in a low atmospheric pressure (Paragraph 18), which is followed by a process of polishing the resin layer where the later process requires the removing of the smoothing plate as well as the vacuum pressing or low atmospheric pressure. In order to remove the vacuum pressing or low atmospheric pressure, a pressure valve is open to let outside air gradually enter into the vacuum chamber. Therefore, Keiichi Murakami at a minimum teach process of introducing outside air into the reduced pressure environment or the process of reducing the pressure applied to the smoothing plate while maintaining the curing temperature, as claimed. Furthermore, applicant cites the critical problem of solving the excessive outflow of resin needed in the claim 1, as remarked on page 6, last paragraph to page 7 about the claimed limitation of solving the excessive outflow of resin not taught by the prior art Keiichi Murakami and in response to these remarks, the examiner needs to emphasize that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims, which are judged with their broadest reasonable interpretation. (See MPEP 2111 and In re Geuns, 26 USPQ 2nd 1057 (Fed. Cir. 1993)). Therefore, the prior art Keiichi Murakami at a minimum teach the claimed limitation as defined in claim 1.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M & Tu, 6AM - 2PM, and W & Th, 9AM – 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on 571-272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

Art Unit: 3729

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phan Thiem/

Primary Examiner, Art Unit 3729

July 6, 2009